

The number of varieties of conifers is very great, comprising *P. macrocarpa*, *rigida*, *Sabiniana*, *tuberculata*, *muricata*, *Benthamiana*, *austriaca*, *excelsa*, *longifolia*, *cembra*, *Cedrus deodara*, *Cupressus torulosa* and *macrocarpa*, &c., with some very fine specimens of *Wellingtonia*, and one of *Thujopsis japonica* on the lawn.

On the neighbouring properties of Hawkswood and St. Leonards a considerable amount of planting, chiefly of coniferous trees, has also been done; and Sir Cracroft Wilson has not been behindhand either at Culverden or Cashmere. A considerable amount of planting has also been done by order of the late Provincial Government near the Railway Station at Templeton, and elsewhere along the railway lines, under the able superintendence of Mr. Armstrong, the curator of the Government gardens at Christchurch. There has also been some planting on protective works on river banks undertaken by the conservators.

Comparatively little planting has apparently been undertaken in the Otago Provincial District. There are some fine clumps of blue-gum in the Taieri Plain, but not of any extent; and Sir Dillon Bell appears to have done some planting on his station in the Shag Valley. On the whole, however, perhaps because I had no guide like Mr. Lean in Canterbury, and did not know where to look for them, I saw no plantations in Otago deserving of special mention.

Mr. Kirk visited the Hon. Mathew Holmes's plantations near Oamaru, and I print his memorandum on them in full in the Appendix, as being very interesting, and conveying much valuable information regarding that district, which I did not visit from want of time.

There is no doubt that the results of planting operations in Canterbury will prove highly beneficial, and that the private proprietors who have undertaken it are conferring a great boon on their neighbours and the district generally. I have little doubt also that such planting, when undertaken on carefully matured plans, and carried on with skill and economy, will yield a direct as well as indirect pecuniary gain. At page 36 of the "Papers relating to State Forests," is a memorandum by Mr. Calcutt, giving an estimate of the cost of planting and subsequent management of 100 acres of suitable land in trees. I consider his estimate of outlay sufficiently accurate, except that the cost of the land, or an annual rental for it, should clearly be added, as, if not growing trees, it might be used for other purposes. As to the income, it is very difficult to form an opinion; but I should be inclined to pronounce it rather too sanguine. A large allowance should be made for casualties, or trees which never come to any good, and I doubt if the trees at 5 feet apart, taken out at the end of five years, would realize 3d. each. A few hundreds might do so, but, when we come to dispose of 130,700, I fail to see a market in most places: where hop-growing is carried on, they might find a ready sale as hop-poles. I have no doubt that thirty-year-old gum trees, fairly grown, would realize £1 each, probably much more, but they would require then to stand at more than 10 feet apart.

Whilst, therefore, I think there can be no room for doubting that planting in carefully selected localities will prove a financial success, and probably Mr. Calcutt has good reason for his estimates of income derivable, I prefer not to follow in his footsteps and hazard any detailed estimates of the probable cost and return from plantations.

I have, however, no hesitation in recommending planting operations on a considerable scale being undertaken in the Canterbury Plains, the Otago gold field district, and tract of low hills between Meremere and Rangiriri in the Waikato (Auckland).

The reclamation of the sandy wastes on both coasts of the North, and east coast of the South, Island also demands attention, not only because they can thus be utilized and improved, but the destruction of valuable property further inland arrested.

If the State Forest Department be established on a proper footing, I propose at once commencing planting operations in Canterbury, and perhaps also in Auckland. In the former we have the railway and plantation reserves ready for our purpose. Mr. Rolleston and I talked the matter fully over, and agreed as to the outlines of the scheme. We should probably let portions of the reserves for three years, to be handed back fenced and broken up, whilst, in the meanwhile, we got ready our young plants in the nurseries, and collected seed of the eucalypti for broad-cast sowing. We might, also, in some cases, dispose of portions of the reserves to small settlers on conditions of planting and maintaining a certain area adjoining under adequate supervision. Wherever possible, we propose to retain and utilize the existing machinery and *employés* in the work. In Auckland, in the same manner, we would commence on a small scale, first forming a nursery and placing a gardener in charge to rear young plants from seed. Mr. Firth's advice and local experience would be of great value, and I am sure he would gladly give us the benefit of both.

Both in Canterbury (except just under the hills) and Auckland the blue-gum is certainly the tree to grow for the speedy supply of timber and money return. Its greatest drawback is that it impoverishes instead of improving the soil, and admits of no congeners. I should not, therefore, limit operations to that species, but plant out areas of pure conifers and the hard-wood trees of Europe—oak, ash, elm, sycamore, &c.—with conifers as nurses; whilst on the sandy tracts on the seaboard our first efforts would be directed to binding the soil, and providing shelter for the young trees by the growth of scandent shrubs, brooms, and grasses suitable for the purpose. All this is matter of detail, and careful estimates and plans would have to be prepared, in each case, before operations were commenced. These form an important part of a forester's work, as without them we should be proceeding on chance, and working in the dark.

In the Otago gold fields district the want of timber is felt more than in any other part of the colony, as there is absolutely none, and the district is, for the most part, remote from the sea coast, and without railway communication or good roads. Ordinary timber now costs from 25s. per 100 feet at Cromwell, to which place it can be floated down the Molyneux (or Clutha) and Kawarau Rivers, to 50s. at Clyde and Alexandra, to which places the greater proportion is carted from Dunedin at a charge of £6 per 1,000 feet of 1-inch planks; but this is not the description required for mining purposes, which may be said to be to a great degree paralyzed for want of timber.

I was much struck by the wonderful growth of the fruit trees in Mr. Ferraud's garden at Clyde, and by his remark, which I consider not far from the fact, that the adjoining district "would soon have a population of twenty to five-and-twenty thousand were timber made available for mining purposes."